

**WHAT IS CLAIMED IS:**

1. For use in a mobile ad hoc network formed by a plurality of mobile ad hoc network (MANET) nodes, a first MANET node capable of collecting route information associated with a first route from a source MANET node to a destination MANET node, said first MANET node comprising:

a radio frequency (RF) transceiver capable of wirelessly communicating with other ones of said plurality of MANET nodes according to an ad hoc on-demand vector (AODV) protocol; and

a controller capable of receiving incoming data packets from said RF transceiver and sending outgoing data packets to said RF transceiver, wherein said controller receives a Path Marker Request message generated by said source MANET node and retrieves first route topology data associated with said first route from said first Path Marker Request message, said route first topology data identifying all intermediate MANET nodes in said first route coupling said first MANET node to said source MANET node.

2. The first MANET node as set forth in Claim 1 wherein said controller stores said first retrieved route topology data in a route table associated with said controller.

3. The first MANET node as set forth in Claim 2 wherein said retrieved first route topology data from said first Path Marker Request message comprises an IP address associated with each of said all intermediate nodes in said first route coupling said first MANET node to said source MANET node.

4. The first MANET node as set forth in Claim 3 wherein said controller appends an IP address associated with said first MANET node to said first Path Marker Request message.

5. The first MANET node as set forth in Claim 4 wherein said controller forwards said first Path Marker Request message with said appended IP address to said destination MANET node via a next hop in said first route.

6. The first MANET node as set forth in Claim 5 wherein said controller receives a first Path Marker Reply message generated by said destination MANET node and retrieves second route topology data associated with said first route from said first Path Marker Reply message, said retrieved second route topology data identifying all intermediate MANET nodes in said first route coupling said first MANET node to said destination MANET node.

7. The first MANET node as set forth in Claim 6 wherein said controller stores said second retrieved route topology data in said route table associated with said controller.

8. The first MANET node as set forth in Claim 7 wherein said retrieved second route topology data from said first Path Marker Reply message comprises an IP address associated with each of said all intermediate nodes in said first route coupling said first MANET node to said destination MANET node.

9. The first MANET node as set forth in Claim 8 wherein said controller appends an IP address associated with said first MANET node to said first Path Marker Reply message.

10. The first MANET node as set forth in Claim 9 wherein said controller forwards said first Path Marker Reply message with said appended IP address to said source MANET node via a next hop in said first route.

11. For use in a mobile ad hoc network formed by a plurality of mobile ad hoc network (MANET) nodes, a method of collecting route information in a first MANET node, the route information associated with a first route from a source MANET node to a destination MANET node, the method comprising the steps of:

receiving in the first MANET node a Path Marker Request message generated by the source MANET node; and

retrieving first route topology data associated with the first route from the first Path Marker Request message, the route first topology data identifying all intermediate MANET nodes in the first route coupling the first MANET node to the source MANET node.

12. The method as set forth in Claim 11 further comprising the step of storing the first retrieved route topology data in a route table in the first MANET node.

13. The method as set forth in Claim 12 wherein the retrieved first route topology data from the first Path Marker Request message comprises an IP address associated with each of the all intermediate nodes in the first route coupling the first MANET node to the source MANET node.

14. The method as set forth in Claim 13 further comprising the step of appending an IP address associated with the first MANET node to the first Path Marker Request message.

15. The method as set forth in Claim 14 further comprising the step of forwarding the first Path Marker Request message with the appended IP address to the destination MANET node via a next hop in the first route.

16. The method as set forth in Claim 15 further comprising the steps of:

receiving a first Path Marker Reply message generated by the destination MANET node; and

retrieving second route topology data associated with the first route from the first Path Marker Reply message, the retrieved second route topology data identifying all intermediate MANET nodes in the first route coupling the first MANET node to the destination MANET node.

17. The method as set forth in Claim 16 further comprising the step of storing the second retrieved route topology data in the route table.

18. The method as set forth in Claim 17 wherein the retrieved second route topology data from the first Path Marker Reply message comprises an IP address associated with each of the all intermediate nodes in the first route coupling the first MANET node to the destination MANET node.

19. The method as set forth in Claim 18 further comprising the step of appending an IP address associated with the first MANET node to the first Path Marker Reply message.

20. The method as set forth in Claim 19 further comprising the step of forwarding the first Path Marker Reply message with the appended IP address to the source MANET node via a next hop in the first route.